Warm Up!

1.) Write in agenda book

2.) Place homework on desk

3.) Evaluate the expression for a=3, b=4, and c=6

bc + 5a

$4 \cdot 6 + 5 \cdot 3$

$24 + 15$

39

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Lesson 10.3: Generating Equivalent Expressions

Learning Target: I can identify and write equivalent expressions.

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Chapter 10 Vocabulary

The properties below can be used to identify equivalent expressions

Properties of Operations	*Examples*
Commutative Property: When adding or multiplying, changing the order of the numbers does not change the sum or product.	3 + 4 = 4 + 3 2 * 4 = 4 * 2
Associative Property: When adding or multiplying more than two numbers, the grouping of the numbers does not change the sum or product	(3 + 4) + 5 = 3 + (4 + 5) (2 * 4) * 3 = 2 * (4 * 3)
Distributive Property: Multiplying a number by a sum or difference is the same as multiplying by each number in the sum or difference and then adding or subtracting.	6(2 + 4) = 6(2) + 6(4) 8(5 - 3) = 8(5) - 8(3)
Identity Property of Addition: Adding zero to a number does not change its value.	9 + 0 = 9
Identity Property of Multiplication: Multiplying a number by one does not change its value.	1 * 7 = 7

Parts of an algebraic expression	
Terms: the parts of an expression that are separated by + or - signs	**12** + 3**y** ^{2} + **4x** + **2y** ^{2} + **4**
Coefficients: numbers that are multiplied by at least one variable	12 + 3y ^{2} + **4x** + **2y** ^{2} + 4
Like Terms: terms with the same variables) raised to the same power(s)	12 + **3y** ^{2} + **4x** + **2y** ^{2} + **4**
Constant: a specific number whose value does not change	**12** + 3y ^{2} + 4x + 2y ^{2} + **4**
Variable: a letter that is used to represent an unknown number.	12 + 3**y** ^{2} + **4x** + **2y** ^{2} + 4

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Chapter 10 Vocabulary

* Practice on Quizlet

- There is a link on my google classroom

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Distributive Property tells us that multiplying a number by the sum or difference is the same as multiplying a number in the sum or difference and then adding or subtracting.

Example: a(b + c) = ab + ac

2(3x + 4)
6x + 8

Lets prove it! Simplify 2(3 + 4) below, first using the order of operations and then with the distributive property.

Order of Operations

2(3+4)
2(7)
14

Distributive Property

2(3+4)
2·3 + 2·4
6 + 8
14

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Directions: Apply the distributive property to the expressions.

1.) 2(y - 6)

2y - 12

2.) 4(2x - 9)

8x - 36

3.) (7w + 5)3

21w + 15

4.) $\frac{1}{3}$(6y + 9)

2y + 3

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To complete the following examples, look at the properties listed on your vocabulary sheet.

Directions: For each expression, use a property to write an equivalent expression. Tell which property you used.

3.) (ab)c = Assoc. a(bc) (ac)b

4.) 3y + 4y = Comm. 4y + 3y

5.) 6 * 7 = Dist. y(3+4)

Comm. 7·6

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For the next examples, you are given two different expressions. Using the properties of operations (from your vocabulary sheet, determine if the expressions are equivalent.

Directions: Use the properties of operations to determine if the expressions are equivalent.

6.) 6x - 8 ; 2(3x - 4)

6x - 8

yes!

7.) 2 + x ; 1/2(4 + x)

2 + ½x

NO!

8.) 2(y - 3) ; 2y - 6

9.) 6 + y ; (12 + y)

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Khan Academy Assignments (work in the order listed below)

* Properties of Addition
* Properties of Multiplication
* Parts of an algebraic expression
* Distributive Property with variables

If you get below a 75%, you must "redo" the assignment

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Homework

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